



AUTOTROL 360 MANUAL & 361 SEMI-AUTOMATIC
FILTER VALVES
SERVICE MANUAL



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MANUAL OVERVIEW

How To Use This Manual

This manual is designed to guide the installer through the process of installing and starting the filter.

This manual is a reference and will not include every system installation situation. The person installing this equipment should have:

- Knowledge in water filter installation
- Basic plumbing skills

Icons That Appear In This Manual

⚠ WARNING: Failure to follow this instruction can result in personal injury or damage to the equipment.

NOTE: This will make the process easier if followed.

Inspection

Inspect the unit for damage or missing parts.

SAFETY INFORMATION

Electrical (361 Only)

- There are no user-serviceable parts in the AC adapter, motor, or controller. In the event of a failure, these should be replaced.
- All electrical connections must be completed according to local codes.
- Use only the power AC adapter that is supplied.
- The power outlet must be grounded and always on.
- To disconnect power, unplug the AC adapter from its power source.
- Install an appropriate grounding strap across the inlet and outlet piping of the water system to ensure proper grounding is maintained.

Mechanical

- Do not use petroleum-based lubricants such as petroleum jelly, oils, or hydrocarbon-based lubricants. Use only 100% silicone lubricants.
- All plastic connections should be hand tightened. Plumber tape should be used on connections that do not use an O-ring seal. Do not use pliers or pipe wrenches.
- All plumbing must be completed according to local codes.
- Soldering of the plumbing should be done before connecting to the valve. Excessive heat will cause interior damage to the valve.
- Observe local drain line requirements.
- Do not use lead-based solder for sweat solder connections.
- Do not support the weight of the system on the control valve fittings, plumbing, or the bypass.
- It is not recommended to use sealants on the threads. Use plumber tape (PTFE) on all threads.

General

- Observe all warnings that appear in this manual.
- This system is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
- Keep the unit in the upright position. Do not turn on side, upside down, or drop. Turning the tank upside down will cause media to enter the valve.
- Operating ambient temperature is between 34°F (1°C) and 120°F (49°C).
- Operating water temperature is between 34°F (1°C) and 100°F (38°C).
- Working water pressure range is 20 to 125 psi (1.38 to 8.61 bar).
- Follow state and local codes for water testing.
- When filling media tank, do not open water valve completely. Fill tank slowly to prevent media from exiting the tank.
- Always make modifications to house plumbing first. Connect to valve last.
- Plastic parts and O-rings may be damaged by heat and solvents. When constructing plumbing connections, allow heated parts to cool and protect parts from solvents.

Location Selection

Location of a water treatment system is important. The following conditions are required:

- Level platform or floor.
- Constant electrical supply to operate the controller.
- Total minimum pipe run to water heater of ten feet (three meters) to prevent backup of hot water into system.
- Local drain or tub for discharge as close as possible.
- Water line connections with shutoff or bypass valves.
- Room to access equipment for maintenance.

CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

Outdoor Locations

It is recommended that the equipment be installed indoors. When the water conditioning system must be installed outdoors, several items must be considered.

- **Moisture** — The valve and controller are rated for NEMA 3 locations. Falling water should not affect performance. The system is not designed to withstand extreme humidity or water spray from below. Examples are: constant heavy mist, near corrosive environment, upwards spray from sprinkler.
- **Direct Sunlight** — The materials used will fade or discolor over time in direct sunlight. The integrity of the materials will not degrade to cause system failures.
- **Temperature** — Extreme hot or cold temperatures may cause damage to the valve or controller. Freezing temperatures will freeze the water in the valve. This will cause physical damage to the internal parts as well as the plumbing.
- **Insects** — The controller and valve have been designed to keep all but the smallest insects out of the critical areas.

TYPICAL TOOLS AND FITTINGS REQUIRED

- Pipe Cutter
- Tubing Cutter
- File
- Pliers
- Tape Measure
- Soldering Tools
- Lead Free Solder
- Bucket
- Towel
- Plumber Tape
- Adjustable Wrench
- Tube 100% Silicone Grease

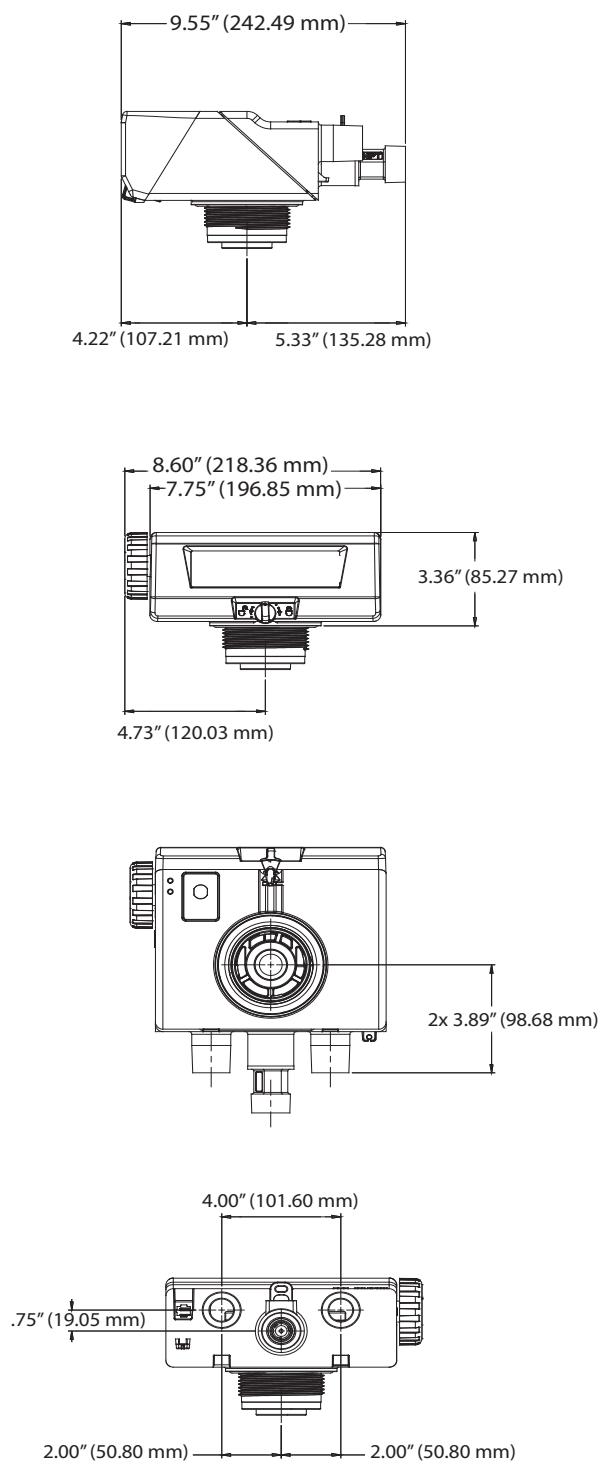


Figure 1

VALVE LAYOUT

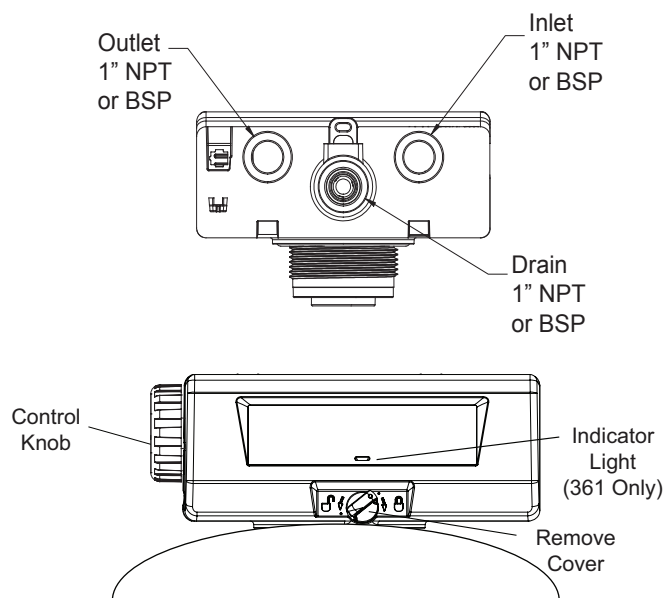


Figure 2

SPECIFICATIONS

Flow Rates (Valve Only)

Service @ 15 psi	15-20 gpm (57-76 lpm) full flow
Backwash @ 25 psi.....	17-20 gpm (64-76 lpm) full flow
Fast Rinse @ 25 psi	5 gpm (19 lpm)

Valve Connections

Tank Thread	2-1/2 inches (63.5 mm) – 8, male
Inlet/Outlet Thread	1 inch (22.5 mm) BSPT, male
.....	1 inch (22.5 mm) NPT, male
Drain Line.....	1 inch (22.5 mm) BSPT, male
.....	1 inch (22.5 mm) NPT, male
Distributor Tube Diameter.....	1.050 inch (27 mm)
Distributor Tube Length...	Flush to top of tank ± 1/2 inch (13 mm)

Design Specifications

Valve Body	Glass-filled Noryl®
Rubber Components.....	Compounded for cold water
Operating Pressure.....	20-125 psi (1.38-8.61 bar)
Water Temperature.....	34-100°F (1-38°C)
Ambient Temperature*	34-120°F (1-49°C)

* Recommended for indoor use only

Drain Line Flow Controls

1" (22.5 mm)	8-20 gpm (30-76 lpm)
3/4" (1.9 cm)	4-7 gpm (15-29 lpm)

EQUIPMENT INSTALLATION

If you are also installing a water softener, the softener should be installed downstream of this system.

Grounding the Plumbing

It is important that the plumbing system be electrically grounded. When a water treatment system is installed a nonmetallic bypass valve may interrupt the grounding. To maintain continuity, a grounding strap can be purchased at a hardware store. When it is installed the strap will connect the plumbing into the system to the plumbing leaving the system.

Water Line and Bypass Connection

Once you have selected your location check the direction of the water flow in the main pipe.

A bypass valve system should be installed on all water conditioning systems. The bypass valve system isolates the filter from the water supply and provides untreated water to service during routine maintenance and servicing procedures.

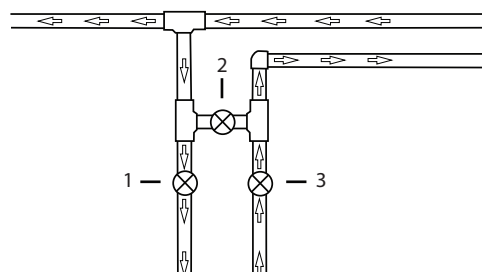


Figure 3

Normal Operation

- Valves 1 and 3 open
- Valve 2 closed

Bypassed Position

- Valve 2 open
- Valves 1 and 3 closed

EQUIPMENT INSTALLATION *continued*

Drain Line Flow Control

The drain line flow control (DLFC) requires assembly (Figures 4 and 5).

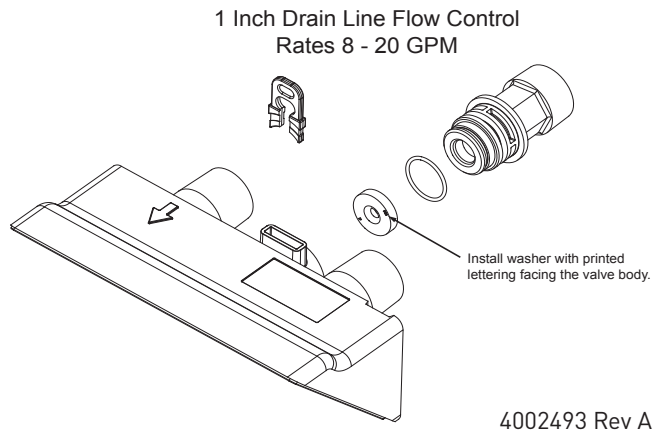


Figure 4 - 1" Drain Line Flow Control

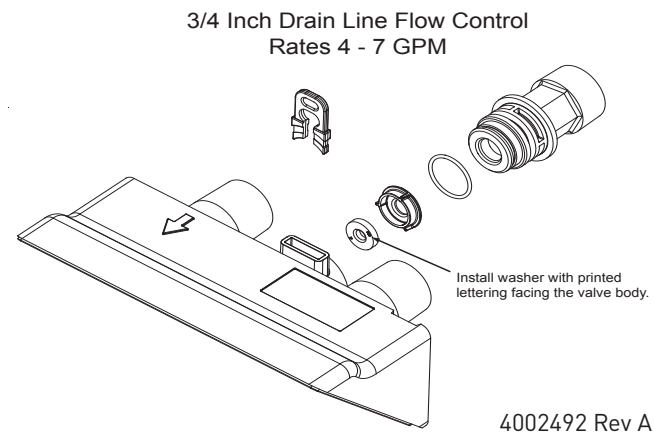


Figure 5 - 3/4" Drain Line Flow Control

Note: Install DLFC washer with printed lettering facing the valve body.

Drain Line Connection

NOTE: Standard commercial practices are expressed here. Local codes may require changes to the following suggestions. Check with local authorities before installing a system.

1. Use appropriate fittings to connect tubing to the DLFC connection on valve.
2. The drain line may be elevated up to 6 feet (1.8 m) providing the run does not exceed 15 feet (4.6 m) and water pressure at the filter is not less than 40 psi (2.76 bar). Elevation can increase by 2 feet (61 cm) for each additional 10 psi (.69 bar) of water pressure at the drain connector.
3. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7 inch (18 cm) loop at the far end of the line so that the bottom of the loop is level with the drain line connection. This will provide an adequate siphon trap.
4. Secure the discharge end of the drain line to prevent it from moving.

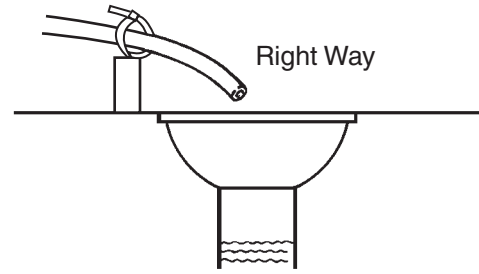


Figure 6 Drain Line Connection

NOTE: Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air gap of two pipe diameters or one inch (22 mm), whichever is larger.

⚠ WARNING: Never insert drain line directly into a drain, sewer line, or trap (Figure 6 Drain Line Connection). Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the filter.

Electrical Connection (361 Only)

⚠ WARNING: This valve and control are for dry location use only unless used with a Listed Class 2 power supply suitable for outdoor use.

The 361 controller operates on 12-volt alternating current power supply. This requires use of the an AC adapter with your system.

Make sure power source matches the rating printed on the AC adapter.

STARTUP - 360

The system will now need to be placed into operation. Please review "INITIATING A CLEANING CYCLE" on page 7 before attempting startup.

1. With the supply water for the system still turned off, position the bypass valve to the "not in bypass" (normal operation) position.
2. Turn the control knob counter-clockwise until the indicator arrow on the valve body is lined up with "1" on the control knob to start a cleaning cycle. The system will be in backwash.
3. Filling the media tank with water:
 - A. With the system in backwash, open the water supply valve very slowly to approximately the 1/4 open position. Water will begin to enter the media tank. Air will begin to be purged to drain as the media tank fills with water.


⚠ WARNING: If opened too rapidly or too far, media may be lost out of the tank into the valve or the plumbing. In the 1/4 open position, you should hear air slowly escaping from the valve drain line.

- B. When all of the air has been purged from the media tank (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge the final air from the tank.
 - C. Allow water to run to drain until the water runs clear from the drain line. This purges any debris from the media bed.
 - D. Turn off the water supply and let the system stand for above five minutes to allow any trapped air to escape from the media tank. Turn on the water supply after five minutes.
4. Return the system to normal operation by turning the control knob counter-clockwise until the indicator arrow is lined up with "0" on the control knob.

The system is now fully operational.

STARTUP - 361

The system will now need to be placed into operation. Please review "INITIATING A CLEANING CYCLE" on page 7 before attempting startup.

1. With the supply water for the system still turned off, position the bypass valve to the "not in bypass" (normal operation) position.
2. Turn the control knob counter-clockwise until the indicator arrow on the valve body is lined up with the Recycle icon  to start a cleaning cycle. The system will begin the backwash cycle.
3. Filling the media tank with water:
 - A. With the system in backwash, open the water supply valve very slowly to approximately the 1/4 open position. Water will begin to enter the media tank. Air will begin to be purged to drain as the media tank fills with water.

⚠ WARNING: If opened too rapidly or too far, media may be lost out of the tank into the valve or the plumbing. In the 1/4 open position, you should hear air slowly escaping from the valve drain line.

- B. When all of the air has been purged from the media tank (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge the final air from the tank.
- C. Allow water to run to drain until the water runs clear from the drain line. This purges any debris from the media bed.
- D. Turn off the water supply and let the system stand for above five minutes to allow any trapped air to escape from the media tank. Turn on the water supply after five minutes.

The system is now fully operational.

INSTALLATION CHECKLIST

- ☐ Read the owner's/installation manual?
- ☐ Follow all safety guidelines in the manual?
- ☐ If metal pipe was used, did you restore the electrical ground?
- ☐ Securely install both drain hoses to an approved drain?
- ☐ Perform a leak test?
- ☐ Move the bypass valve to service?
- ☐ Start a cleaning cycle?

CONTROL OPERATION AND LAYOUT

Simple Control Operation

A simple three-step cycle control knob operates the cleaning cycle for continued operation.

Indicator Light (361 Only)

A visual indicator shows when the system is in a cleaning cycle.

Easy Access Cover Removal

No tools are required to remove cover to access valve assembly for service and repair.

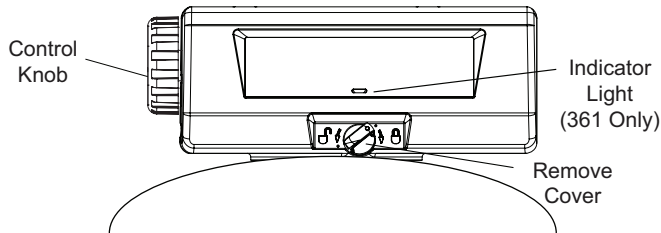



Figure 7

INITIATING A CLEANING CYCLE

Under normal operation, the indicator arrow on the side of the valve body points to the Service icon  (361) or "0" (360) on the control knob.

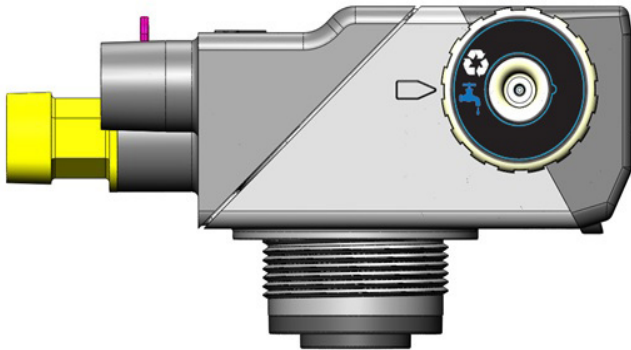


Figure 8 361 Valve In Service

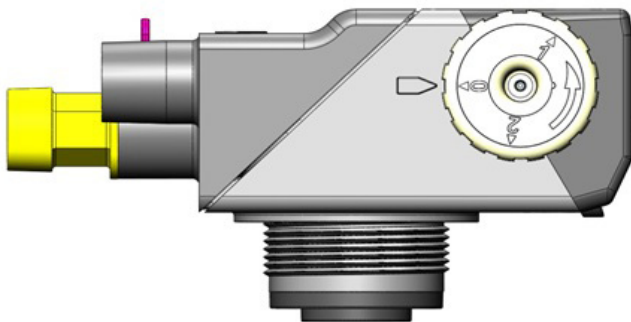



Figure 9 360 Valve In Service

Manual Cleaning Cycle (360 Valve)

1. To start a cleaning cycle, turn the control knob counter-clockwise until the indicator arrow is lined up with "1". The system will backwash, flushing water through the filtration media in the tank.
2. Turn the control knob counter-clockwise until the indicator arrow is lined up with "2". Water will flow to drain.
3. Turn the control knob counter-clockwise to line up the indicator arrow with "0" to return the system back to normal operation.

Semi-Automatic Cleaning Cycle (361 Valve)

1. To start a cleaning cycle, turn the control knob counter-clockwise until the indicator arrow is lined up with the Recycle icon .
2. The system will automatically cycle through a backwash (20 minutes) and rinse (6 minutes) and return to normal operation.



NOTE: The indicator light on the front valve cover will illuminate during regeneration.

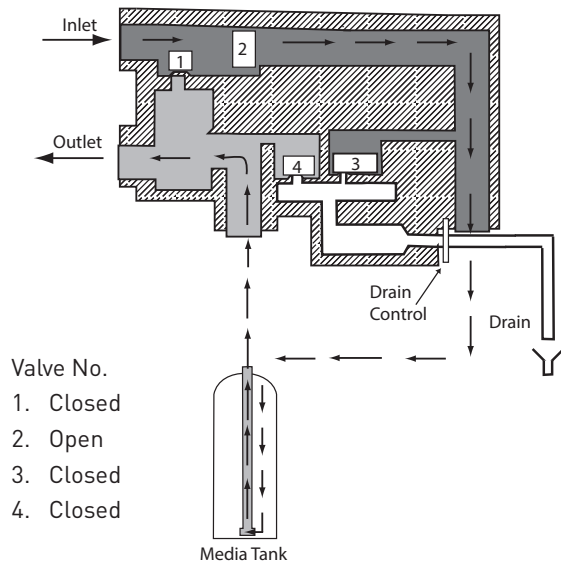
361 Remote Regeneration

An optional remote regeneration kit (P/N 4002561) is available for the 361 valve to enable fully automatic regeneration. When the kit is installed, a remote switch (such as a differential pressure switch) can be connected to the valve to control cleaning cycle initiation.



FLOW DIAGRAMS

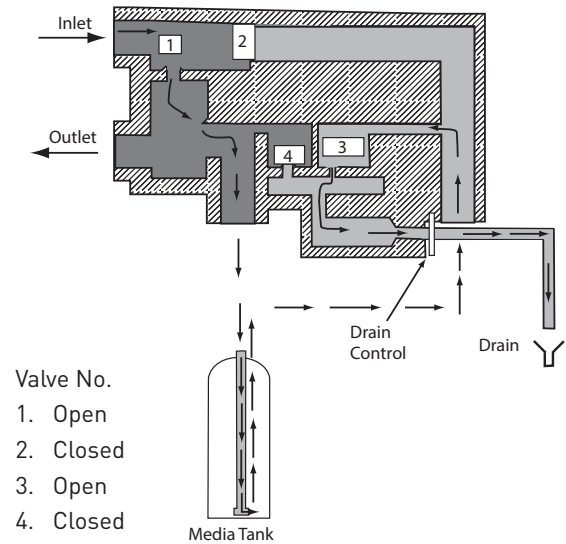
SERVICE

 Untreated Water
 Treated Water





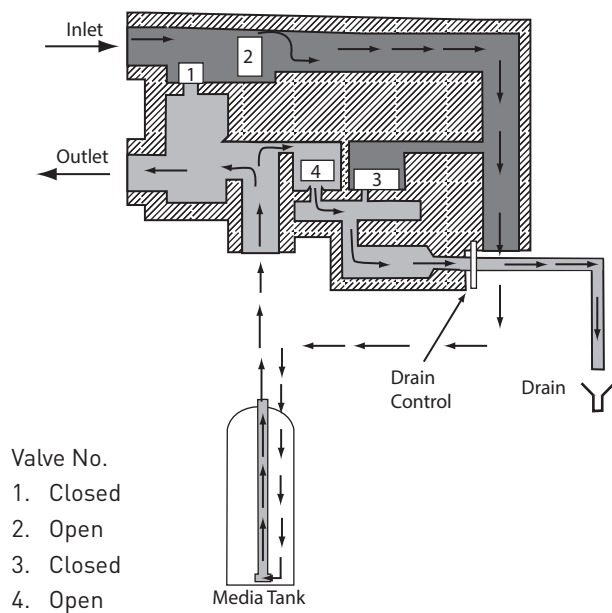
BACKWASH

 Untreated Water
 Backwash

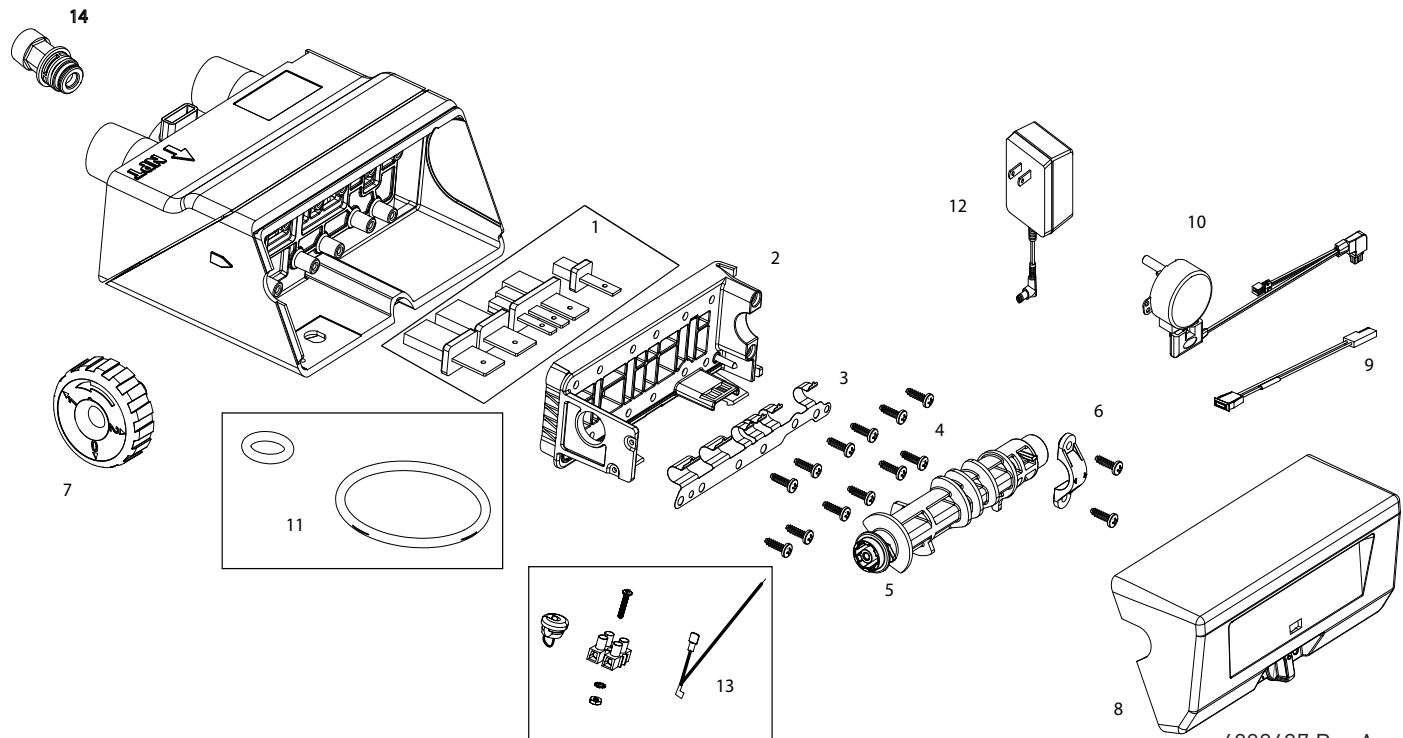


FAST RINSE

 Untreated Water
 Rinse



VALVE ASSEMBLY - 360/361



4002437 Rev A

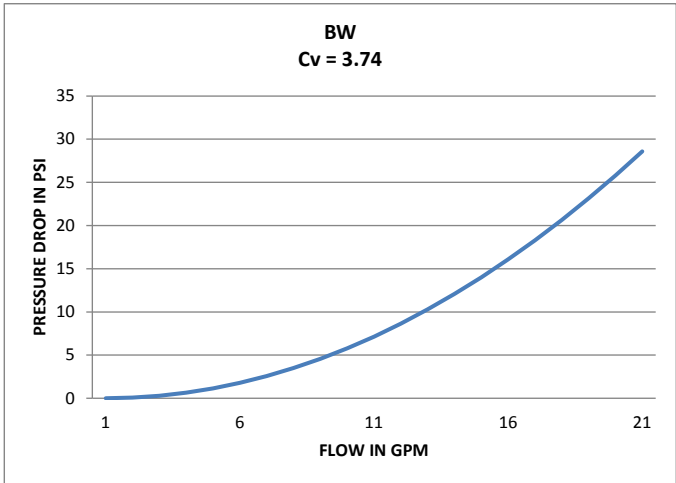
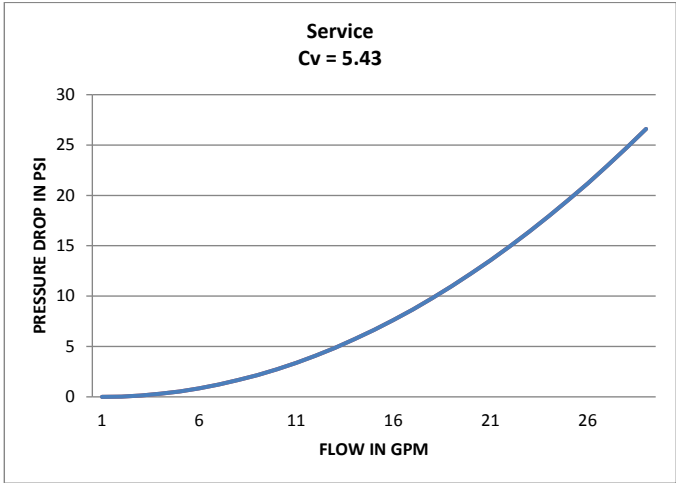
Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1.....	4002555.....	Kit, Valve Discs, 360 Series Filter	13.....	1.....	4002561.....	Kit, Remote Regeneration, 361 Filter
2.....	1.....	4002211.....	Top Plate, 360 Series Filter	14.....	1.....		Drain Line Flow Control
3.....	1.....	4002213.....	Spring, One Piece			4002459.....	Kit, DLFC, 4.0GPM, NPT, 360, Fltr
4.....	15.....	1234170.....	Screw, Pan Head, #8-18 x 9-16 LG			4002460.....	Kit, DLFC, 4.5GPM, NPT, 360, Fltr
5.....	1.....	4002212.....	Cam, 3 Cycle, 360 Series Filter			4002461.....	Kit, DLFC, 5.0GPM, NPT, 360, Fltr
6.....	1.....	1000589.....	Cap, Pillow Block			4002462.....	Kit, DLFC, 6.0GPM, NPT, 360, Fltr
7.....	1.....		Cycle Knob Kits			4002463.....	Kit, DLFC, 7.0GPM, NPT, 360, Fltr
		4002214.....	Knob, Manual Position, 360 Series Filter			4002464.....	Kit, DLFC, 8.0GPM, NPT, 360, Fltr
		4002560.....	Assembly, Knob and Label, 361 Valve			4002465.....	Kit, DLFC, 9.0GPM, NPT, 360, Fltr
8.....	1.....		Cover Assemblies			4002466.....	Kit, DLFC, 10GPM, NPT, 360, Fltr
		4002556.....	Assembly, Cover, World, 360 Valve			4002467.....	Kit, DLFC, 12GPM, NPT, 360, Fltr
		4002557.....	Assembly, Cover, North American, 360 Valve			4002468.....	Kit, DLFC, 15GPM, NPT, 360, Fltr
		4002558.....	Assembly, Cover, World, 361 Valve			4002469.....	Kit, DLFC, 20GPM, NPT, 360, Fltr
		4002559.....	Assembly, Cover, North American, 361 Valve			4002476.....	Kit, DLFC, 4.0GPM, BSP, 360, Fltr
9.....	1.....	4002451.....	Assembly, Wire Harness, Ind. Light, 361 Filter			4002477.....	Kit, DLFC, 4.5GPM, BSP, 360, Fltr
10.....	1.....	4001260.....	12 Volt Motor Assembly			4002478.....	Kit, DLFC, 5.0GPM, BSP, 360, Fltr
11.....	1.....	4001889.....	Valve O-ring Kit			4002479.....	Kit, DLFC, 6.0GPM, BSP, 360, Fltr
12.....	1.....		AC Wall Mount Adapters			4002480.....	Kit, DLFC, 7.0GPM, BSP, 360, Fltr
		1000812.....	Australian Wall Trans - 240V			4002481.....	Kit, DLFC, 8.0GPM, BSP, 360, Fltr
		1000813.....	British Wall Trans - 240 V			4002482.....	Kit, DLFC, 9.0GPM, BSP, 360, Fltr
		1262524.....	Europe Cord Connect Trans - 240V			4002483.....	Kit, DLFC, 10GPM, BSP, 360, Fltr
		1000814.....	Europe Wall Trans - 240V			4002484.....	Kit, DLFC, 12GPM, BSP, 360, Fltr
		1000810.....	Japan Wall Trans - 100V			4002485.....	Kit, DLFC, 15GPM, BSP, 360, Fltr
						4002486.....	Kit, DLFC, 20GPM, BSP, 360, Fltr

TROUBLESHOOTING

System

Problem	Possible Cause	Solution
Flowing or dripping water at drain after cleaning cycle.	Debris is preventing #3 or #4 valve disc from closing.	Remove debris.
	Worn #3 or #4 valve disc.	Replace valve discs.
361 control will not complete a cleaning cycle automatically..	AC adapter or motor not connected.	Connect power.
	Debris is preventing camshaft from rotating.	Remove debris.
	Defective motor.	Replace motor.
Backwashes or purges at excessively low or high rate.	No drain line flow control.	Install drain line flow control.
	Restricted drain line.	Remove restriction.

FLOW PERFORMANCE DATA CHARTS



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